William Steel Creighton—An Appreciation

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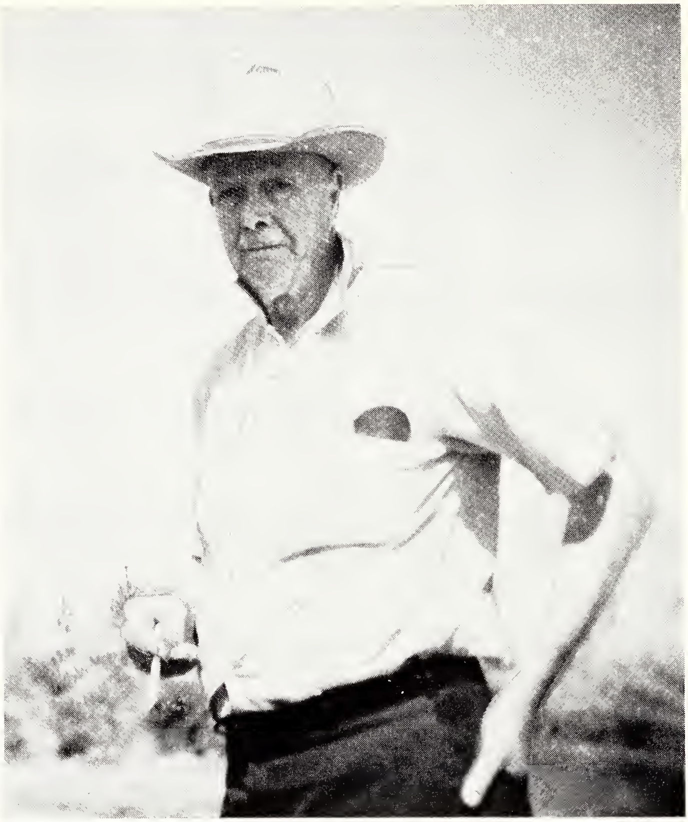
Received for Publication January 7, 1974

The accompanying photograph of Dr. Creighton is an excellent likeness, and while there seem not to be many such available, this one has been graciously furnished by his wife, Martha. I am indebted to her for this and also for certain biographical information without which this account could not be written.

Dr. Creighton was born April 3, 1902, in Philadelphia, Penn., the son of John Harvey and Ethel Steel Creighton, and died July 23, 1973, at Alexandria Bay, New York. He received a bachelor's degree from Roanoke College, Virginia, in 1924, his M.S. degree from Princeton in 1926, and the D.Sc. degree from Harvard in 1930. During his attendance at Princeton he carried out research on the luminescence mechanism of fireflies, but, in 1926, while working with Dr. Frank E. Lutz of the American Museum of Natural History, he became interested in the study of ants. Dr. William Morton Wheeler, one of the leading authorities on ants, who was at the American Museum, was transferred to Harvard University, so Creighton moved to Boston in order to continue his interests and his training under Professor Wheeler. The two men cemented a lasting friendship and an academic rapport that was often reflected in Creighton's sincere and high regard for his mentor by his references to "Uncle Bill Wheeler." The combination of their efforts was to have a very significant effect on the course of myrmecology; it brought a maturity to the study of ants in North America that was salutary. Nevertheless, Creighton did not hesitate to disagree with Wheeler nor to correct his own mistakes when scientific accuracy so demanded, and this is quite evident to those who peruse the now standard volume on North American Formicidae.

In 1931, Dr. Creighton joined the faculty of the Department of Biology at the City College of New York and gave continuous and dedicated service for 31 years, retiring as professor emeritus in February 1962. His associates have prepared a mimeographed resolution of respect, and I have the permission to quote from this statement, as no more fitting tribute to his capacities as a teacher could be made.

> "His chief devotion . . . was to his teaching and to his students. A grandson of a preacher, he had a touch of the pulpit in his proselytizing approach to biology. He was deeply committed to demonstrating to his students the intellectual and emotional rewards of the pursuit of the science of biology. This commitment was especially evident by his preference for teaching our freshman general biology courses. These are clearly



the most difficult courses to teach successfully, and here, he felt, was where future biologists could be made. He believed that, course content and syllabus aside, first and foremost we must instill in our students a respect and enthusiasm for the subject. The communication of information comes easily as a consequence. He was a stirring lecturer, and always managed to project a personal involvement in the subject matter—that magical feeling of wonder about life, and curiosity about how it works. It was a dull mind indeed that could not be stimulated with a sense of excitement by one of his lectures.

In his last several years prior to retirement, Professor Creighton saw major changes in his field. The advent of molecular and biochemical approaches to biology took many by surprise. Not so Bill Creighton. He revised and up-dated his teaching materials constantly, but always with the basic principle of projecting his personal enthusiasm to the students. In this way, he found that he could demand high standards of performance, and his students gave him their best willingly. His patience with students and their questions seemed inexhaustible, yet there were times when he erupted easily, especially when faced with sloth or with bureaucratic red tape. Under such conditions he spoke his mind clearly and unequivocally.

Bill's colleagues found in him a staunch friend and a frank critic. He had a delightfully earthy sense of humor, and had the remarkable facility for separating fraud from truth, and doing so with devastating clarity."

Professor Creighton's interests and research contributions were in the field of ant biology, especially the systematics of the Formicidae. In collaboration with Wheeler he began a study of the taxonomy of ants in North America that was to summarize the diverse knowledge that had already accumulated, and to provide in a single publication a guide to the identification and other aspects of the taxonomy of all our native species. Before this effort was far along, Professor Wheeler died (1937), and Creighton was left the task of completing the study. That he did so with outstanding success is now history. He enjoyed unlimited access to the Wheeler Collection, part of which was in the American Museum in New York, and part in the Museum of Comparative Zoology at Harvard in Cambridge, both of which contained a large number of type specimens, and otherwise authentically determined material identified by Wheeler himself and such renowned authorities in Europe as Emery and Forel. In addition, he availed himself of the very substantial holdings in the United States National Museum in Washington, through the cooperation of Dr. Marion R. Smith, who was then in charge of these specimens. Creighton also built a personal collection which contained numerous types presented to him by Wheeler, by other ant students, and types resulting from the descriptions of new species for which Creighton was the original author. But more than this, Bill Creighton amassed a superb collection based upon years of field work and direct acquaintance through automobile travel with virtually all sections of the country. Thus he reinforced his study of cabinet specimens by coming to know the geographical and ecological conditions in which his species existed. He always insisted that those who did no field work were under serious handicaps and could not possibly understand the full significance of the biology of the forms being studied. Although he did not travel widely over the world, Creighton did acquire experience at the Soledad field station in Cuba in the earlier years of his life and, in later years, after the publication of his book, extended his journeys to many parts of Mexico, particularly the nontropical areas. And, finally, he cultivated opportunities for augmenting his collection by exchanging specimens and making gifts to support the work of colleagues, too numerous to mention separately.

Museum work and laboratory work were indispensable tools, as they are for all taxonomists, but Bill Creighton was a first-class naturalist as well, and his knowledge of distributional ecology, vegetation, and the names of plants (as well as animals), was truly remarkable. He knew of the manifold complexities and interrelationships that exist in the natural world and that this matrix must not be ignored if one hoped to gain a satisfactory comprehension of the distribution, and the causes thereof, of the particular group of organisms in which he was interested. As far as practicable, his collecting of specimens always entailed the gathering of relevant habit and habitat notes associated with ants, and he was very cognizant of the role of altitude in affecting the occurrence of living things. Especially for mountainous districts, elevation became a conspicuous inclusion on his labels. Meticulous attention to essential details was not foreign to him. A glimpse of the intensity and thoroughness of his field work is revealed by his willingness to lie prone in the dirt in search of minute species, his efforts literally to leave no stone unturned, his pursuit of the arboreals (a most difficult type of ant to find and bag) even when it necessitated tearing off rotten branches and injuring his hands in the bargain. He visited type localities in an effort to locate additional topotypes, although in the areas he ransacked for specimens he was not always successful. Rare species were a challenge, and he had the perseverance to track them in likely as well as unlikely places.

The work of revising the taxonomy of the entire North American ant fauna developed into an enormous undertaking. He soon realized that far-reaching changes would be necessary to modernize the nomenclature and that the job would go well beyond what he and Wheeler had originally visualized. Many species had been described utilizing subtle and confusing differences in color and inconsequential variations in size. To Creighton, these criteria (particularly color) as separatory characters were suspect, and he succeeded in many instances in proving his point by demonstrating that the supposed differences were inconstant over long series of specimens, or could be found among a series of individuals obtained from a single nest! The work entailed not only a critical re-examination of specimens representing numerous taxa but also a painstaking review of the voluminous literature on the subject, both foreign and domestic, containing original descriptions of ants, as well as a penetrating analysis of what the authors said or did not say about the insects they studied. The result of such investigations was extensive synonymy of many well-known taxa commonly accepted by previous writers. Although this was unavoidable in the light of new knowledge and although some cherished names had to be sacrificed on the altar of scientific accuracy, Creighton strove sincerely to salvage and conserve every ant name possible, and as he would put it, “refrain from upsetting too many apple carts.” To serve the concept of stability in nomenclature, he exercised the privilege of the “first reviser” to sustain a name by not adhering strictly to the law of priority, where to do so would only weaken the status of the taxon in question. However, this action was rare indeed.

Of even greater magnitude was the problem of complicated quadrinomial nomenclature that had gradually built up in myrmecology over the years and that reached its culmination in Emery’s treatment of the world ant fauna in the several fascicules of the Genera Insectorum, the last of which appeared in 1925. Subsequent to this, new ideas concerning the nature of species came into clear focus through the work of Ernst Mayr and others who showed that species should be regarded each as living and evolving populations of individuals that are for the most part biologically (reproductively) isolated from one another. In the course of their evolution, it was thought, these populations developed through stages of divergence that could be detected and recognized as subspecies, and these subspecific populations could be designated by formal names added to the basic binomial, thus producing the widely used trinomial nomenclature. But only this one infraspecific category seemed to be objective and defensible, varieties and forms then having to be discarded. In the midst of this atmosphere Creighton carried out his revision, and he adopted the practice of employing binomials, as usual, and the trinomial wherever the facts, particularly distributional data, justified its use. For it was believed that subspecies arise as geographic or topographic isolates and that by definition they must replace each other geographically to be valid. Accordingly, wherever a species appeared to be composed of two or more structurally different and essentially allopatric populations, and especially if there could be found any evidence of intergradation among them in intermediate localities, Creighton treated them as subspecies. Forms that were unquestionably distinct, with constant nonintergrading traits, however minute, he regarded as full species. In given cases, forms that were thought of as separate species were, on review, reduced to subspecies; those that had been subspecies or even varieties, if they qualified, were necessarily raised to species rank. The varietal category itself was abandoned. Thus in one great consistent effort he effectively swept aside the troublesome varietal rank, recognized the validity of any previous taxon as a full or subspecies (if the data supported such action), described new species when their populations conformed to the refined criteria of the biological species concept, and in the end simplified and enormously improved the taxonomy of American ants. This achievement was and will remain a milestone in the history of myrmecology. Since then new forms are not given varietal status, most being described as species and some as subspecies. Interestingly, the biological validity of the latter category also has been challenged since Creighton completed his studies. His work was entitled, "The Ants of North America," and was published as Volume 104, 585 pp., 57 plates, 1950, in the Bulletin of the Museum of Comparative Zoology, at Harvard College.

I came to know Professor Creighton personally in 1950, just after the publication of his treatise on American ants. There had been a few previous exchanges of letters, but there was no indication he might be spending a year at the University of Colorado. The chairman of our department, Dr. Gordon Alexander, had met Creighton at Princeton, and the Creightons and Alexanders were close friends. So when a year's leave of one of our staff created a temporary vacancy, Bill Creighton was invited to fill it. His inimitable capacities as a teacher showed themselves again, judging from the testimony of students, and he seemed to fully enjoy the experience as well. My opportunities to consult with him at length, for he was always most generous with his time, were invaluable. Our myrmecological conversations were almost a daily occurrence, but I must confess the benefits flowed nearly completely in my direction. For one who was (prior to that time) necessarily accustomed to identifying ants with limited access to scattered publications, the help of irregular correspondence, and the aid of occasional exchanges of specimens, this association was a bonanza. He brought with him numerous type specimens of North American ants, and we were able to make many direct comparisons with ants collected in Colorado. All this, together with the newly published Ant Book which was worked over in minute detail, gave tremendous impetus to the study of Colorado ants. It may be safely asserted also that this book opened the way for a much clearer understanding of our native ants than ever before, as it has stimulated the publication of many significant investigations by myrmecologists in widely separated portions of the United States and Canada.

Toward the end of the academic year, Dr. Creighton was awarded a Guggenheim Fellowship, and with this recognition of his accomplishments, he was able to turn his attention to another aspect of American ant biology. He had already traveled extensively in many parts of the United States, including the Rocky Mountain States and the Pacific Coast areas. He now looked to Mexico, whose ant populations had been so little studied and so sparsely collected that it was a country with almost unlimited possibilities. He penetrated far south in Mexico but found the nontropical territories exceedingly rich as well as the tropical, and decided to confine the most concentrated efforts of field work to the former. His letters about the various localities visited were full of enthusiasm, and frequently contained descriptions of people, places, or events made vivid by a style distinctively his own. The jeep the Creightons used was ingeniously fitted out as a traveling laboratory, even to the addition of a rigid support for a binocular microscope. Martha designed a monogram for the vehicle showing the queen of a leaf-cutting ant! They camped out and traveled Mexico the hard way, and on a very rugged road high in the Sierra San Pedro Martir of Baja, California, they nearly came to grief. Today very many localities are easily accessible by fine paved highways, and the numbers of good motels are increasing steadily.

After Bill's retirement from City College, the Creightons spent summers at their modest but charming home on Tar Island in the St. Lawrence near the exit from Lake Ontario. The house was improved for comfort and a room added. By his own labor, the boat dock was rebuilt and heavy rocks were fashioned into a sea wall to avert erosion from annual changes in the level of the river. Most enjoyable of all was the development of the grounds, complete with rock garden, and a collection of dwarf evergreens from numerous localities, in which the Creightons took great and justifiable pride. For their winters they returned to the community of La Feria, Texas, in the valley of the Rio Grande. Here Bill became interested in studying the behavior of ants. Long mild seasons and newly acquired leisure time, as well as ideal ant subjects, contributed to his success, and a series of papers flowed from his pen. During this period also a latent ability showed up for making excellent, finely shaded, pen-and-ink drawings of certain ant species. He did not lose his concern for ant systematics, however, for he continued to visit Mexico for specimens, and some months before his death had suggested that I accompany him to one of the localities near the eastern Sierra. Unfortunately, this could not be carried out. Studies on *Cardiocondyla* and on *Colobopsis* are scheduled to appear posthumously.

He was a member of a number of scientific societies, Sigma Xi, the New York Entomological Society, Georgia Entomological Society, and he was honored by election as a Research Associate to the American Museum of Natural History. He seemed to have a constitutional aversion to politics in science, preferring to make his influence felt strictly through the publication of research papers on the subject to which he was so deeply devoted.* One could be certain always of his candor and of his absolute sincerity. His advice was trustworthy wisdom, but with it all he retained an enviable humility. Whether consciously or not, he was aware that science is greater than men.

To one who has known Bill Creighton as friend and colleague for the past twenty-three years, his passing is an irreparable loss. He has left an indelible imprint on my efforts in myrmecology, as well as on the contributions of many others. In an exchange of correspondence with him, letters in excess of 225 have been accumulated and preserved. Our collection of ants has received important and crucial additions, some of them types, thanks to his generosity and willingness to share in mutually advantageous exchange.

He married Martha Patterson, of Cranford, New Jersey, in 1930, and although there were no children, he, together with Martha's constant help and companionship, has given us a legacy of solid scientific achievement and unimpeachable integrity. In the words, again, of his associates during his long tenure at the "College" in the City of New York, he was "a unique combination of scholar, teacher, and powerful personality. His death leaves a hiatus in the hearts of his friends that will never be filled."

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